REMARKS

Claims 1, 4-14, 16-19, 21-23, 45, 46 and 55-58 are pending. Applicant notes that claims 12 and 14 were previously withdrawn by the Examiner as being directed toward a non-elected species. Based on the Examiner's indication of allowable subject matter (discussed below), and indication in the Disposition of Claims that these claims are presently pending, Applicant understands the Examiner to have withdrawn his restriction requirement as to these claims and examined these claims as requested in the Applicant's paper dated March 29, 2005.

Claim 1, 4-14, 16-19, 21-23, 45 and 55-58 are amended herein. In particular, claim 1 is amended herein to clarify that the armor is a ballistic armor. Ballistic armor refers to armor adapted to withstand penetration by an impacting projectile. Support for this amendment can be found, for example at page 6, lines 7-20 of the Subject Application. Claims 4-14, 16-19 and 21-23 are amended herein to clarify the antecedent basis for certain elements recited therein in view of the amendment to claim 1. Claim 17 is further amended to indicate that the third plate recited therein is contiguous with and metallurgically bonded to at least a portion of said first plate. Support for this amendment can be found throughout the Subject Application, for example at page 9, line 19 to page 10, line 5.

Claims 45 and 56-58 are amended herein to clarify that the armor is a ballistic armor.

Claim 55 is amended herein to clarify that the armor is a ballistic armor and further to recite that article of manufacture comprises at least one second plate of a metallic material that is contiguous with and metallurgically bonded to the at least one energy absorbing plate. Support for the latter amendment can be found throughout the Subject Application, for example, at page 9, lines 11-18.

Applicant asserts that no new matter has been introduced by these amendments and requests that the Examiner enter these amendments in the record.

In the Office Action, the Examiner rejects the claims over several references not previously cited. Although the Examiner has not indicated that the amendments and/or arguments submitted in connection with the Applicant's paper dated March 29, 2005 were persuasive in overcoming the Examiner's prior rejections, to the extent that the

Examiner does not rely on the previous references and instead relies on new references to reject the claims in the present Office Action, Applicant understands the Examiner to have withdrawn his prior rejections.

In the present Office Action, the Examiner rejects claims 1, 4-11, 16-19, 21-23, 45, 46 and 55-58 and objects to claims 12-14 as being dependent on a rejected base claim(s). These rejections and objections are addressed below in turn.

Claim Rejections

Rejections Under 35 U.S.C. §102(e) based on Ishida et al.

In the Office Action, the Examiner rejects claim 55 under 35 U.S.C. §102(e) based on Ishida et al. According to the Examiner, Ishida discloses a plate comprised of:

a) a metallic material that is a shape memory alloy; and

b) a plate.

Applicant notes that as amended, claim 55 recites, in part, an article of manufacture comprising at least one energy absorbing plate and at least one second plate of a metallic material that is contiguous with and metallurgically bonded to the at least one energy absorbing plate, wherein the article of manufacture is a ballistic armor plate.

Applicant submits that Ishida et al. neither teaches nor suggests an article of manufacture comprising an energy absorbing plate wherein the article of manufacture is a ballistic armor plate. Ishida et al. is directed toward a copper-based alloy having high shape memory properties and superelasticity, and methods of making the same. While Ishida et al. discloses that Ti-Ni shape memory alloys have been used in various applications "such as dampers for microwave ovens, wind-controllers of air conditioners, steam pressure-controlling valves of rice cookers, air vents for architectures, antennas of cellular phones, glass frames, brassiere flames [sic]," notably there is no teaching or suggestion in Ishida et al. of *a ballistic armor comprising a shape memory alloy.* Ishida et al. at col. 1, lines 18-26. Ishida et al. further teaches that the specific shape memory alloy plate disclosed therein is "usable for springs, connector members, clips, etc." Ishida et al. at col. 11, lines 6-9. Again, there is no teaching or suggestion of a ballistic armor comprising a shape memory alloy.

Furthermore, as indicated above, amended claim 55 recites that the article of manufacture comprises at least one second plate of a metallic material that is contiguous

with and metallurgically bonded to the at least one energy absorbing plate. Applicant submits that Ishida et al. also does not disclose or suggest this aspect of the article recited in claim 55.

Since anticipation under 35 U.S.C. §102 requires that a single reference either explicitly or inherently teach all the limitations of the claim, Applicant respectfully submits that Ishida et al. does not anticipate claim 55 and respectfully requests that the Examiner reconsider and withdraw this rejection of claim 55.

Rejections Under 35 U.S.C. §103(a) based on Ishida et al. and Scully et al.

The Examiner rejects claim 57 as being unpatentable over Ishida et al. in view of Scully et al. under 35 U.S.C. §103(a). The Examiner applies Ishida et al. as indicated above, but indicates that Ishida et al. fails to teach an armored vehicle. The Examiner asserts that this deficiency is provided by Scully et al., which discloses an armored vehicle. The examiner further asserts that it would have been obvious to a person of ordinary skill in the art to substitute the plate taught in Ishida et al. for a plate taught in Scully et al., and that Scully et al. specifically encourages such combination at col. 1, lines 51-62.

As indicated above, although Ishida et al. discloses a plate of a shape memory alloy, Ishida et al. is devoid of any teaching or suggestion to use the plate as a ballistic armor. Further, while Scully et al. teaches that the armor plates ("panels") taught therein "may be constructed of various different armor materials," there is no teaching or suggestion in Scully et al. to use a shape memory alloy as an armor plate.

In order to establish a prima facie case of obviousness under §103(a), there must be some motivation or suggestion to make the combination, either in the references themselves or in the knowledge generally available in the art. While the Examiner asserts Applicant is merely substituting "one material type of armored plate for another," *neither Ishida et al. nor Scully et al. teach or suggest that a shape memory alloy plate is a suitable armor plate.* Accordingly, one skilled in the art would not be motivated as suggested by the Examiner to use the plate taught in Ishida et al. in the armored vehicle taught in Scully et al.

The Examiner appears to be suggesting that *any plate* could be an armor plate. However, Scully et al. does not teach or suggest (nor has the Examiner pointed to any

reference teaching) that a plate of *any material* would be a suitable armor plate. Instead Scully teaches that the panels can be made from various different "*armor materials.*" As discussed above, neither Scully et al. nor Ishida et al. teaches or suggests that a shape memory alloy armor plate.

Further, even if the asserted combination of references were proper, as amended, claim 57 recites, in part, that the ballistic armor plate comprises at least one energy absorbing plate *and at least one second plate of a metallic material* that is contiguous with and metallurgically bonded to the at least one energy absorbing plate. As discussed above with respect to the rejection of claim 55 in view of Ishida et al., Ishida et al. does not teach or suggest this aspect of claim 57 and Scully et al. does not remedy this deficiency.

In view of the foregoing, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection of claim 57.

Rejections Under 35 U.S.C. §102(b) based on Mori et al.

In the Office Action, the Examiner rejects claims 1, 4-6, 9-10, 17, 45 and 55 under 35 U.S.C. §102(b) based on Mori et al. According to the Examiner, Mori et al. discloses an armor comprising:

a) at least one energy absorbing layer of a shape memory alloy;

b) at least one second layer of a metallic material;

c) metallurgically bonding the at least one energy absorbing layer;

d) a third plate.

However, Applicant asserts that Mori et al. is *not directed to a ballistic armor*, but instead a shape memory alloy *pipe coupling for joining two pipes*. There is simply no teaching or suggestion in Mori et al. of ballistic armor comprising at least one of a metallic material that undergoes a reversible phase change upon absorbing energy and a metallic material that exhibits an elastic strain deformation of at least 5% as recited in independent claims 1, 45 and 55. Since Mori et al. neither teaches nor suggests this aspect of the rejected claims, Applicant asserts that these claims are not anticipated by Mori et al.

The Examiner further asserts that Mori et al. discloses a second layer of a metallic material (specifically element 4 in Mori et al.) and, at col. 8, lines 34-46, discloses

metallurgically bonding a second layer to the energy absorbing layer. However, at col. 8, lines 34-36, Mori et al. refers to the *construction of the stainless steel double tube* (element 3 shown in Fig. 1) that encloses a shape memory alloy tube (element 2 shown in Fig. 1). Thus, this passage does not teach or suggest metallurgically bonding a second layer of a metallic material to a shape memory alloy as suggested by the Examiner.

Further, as discussed at col. 2, line 66 to col. 3, line 7, the stainless steel double tube has "an *inner tube portion in contact with the inner surface of the shape memory alloy tube* and *an outer tube portion formed so as to be alienated from the outer surface of the shape memory alloy tube* so that the inner tube can be deformed in accordance with the deformation of the shape memory alloy tube." (Emphases added). Further, with reference to Fig. 2, at col. 8, lines 33-34, Mori et al. indicates that *element 4 is the outer tube* of the stainless steel double tube, and *element 5 is the inner tube* of the stainless steel double tube. Thus, the element that the Applicant understands the Examiner to be suggesting is the equivalent of the claimed "second layer of a metallic material" (that is, element 4 in Fig. 2 of Mori et al.) is never in contact with, much less metallurgically bonded to, the shape memory alloy disclosed in Mori et al.

Even assuming arguendo that element 5 (i.e., the inner tube in Fig. 2 of Mori et al.) is properly considered to be equivalent to the claimed "second layer of a metallic material," Applicant asserts that there is no teaching or suggest in Mori et al. to metallurgically bond the inner tube and the shape memory alloy tube in Mori et al. As discussed above, the passage relied on by the Examiner does not refer to metallurgically bonding the inner tube and the shape memory alloy tube, but instead to welding end tubes to inner and outer stainless steel tubes to form the stainless steel double tube for enclosing a shape memory alloy tube.

The Examiner also indicates that Mori et al. teaches a third plate 1 or 5. However, element 1 in Mori et al. is the *pipe* to be coupled by the disclosed pipe coupling and element 5 is the *inner tube* of the stainless steel double tube. Even assuming arguendo that element 1 (i.e., the pipe) is equivalent to the claimed "third plate," amended claim 17 recites, in part, that the third plate is disposed opposite the second plate and is contiguous with and *metallurgically bonded* to at least a portion of the first plate. However, as discussed at col. 4, lines 23-31 of Mori et al., to avoid galvanic

corrosion, *the shape memory alloy tube of Mori et al. does not come into direct contact with the pipes to be coupled.* Instead, the stainless steel double tube, in which the shape memory alloy tube is enclosed, contacts the pipe. Thus, element 1 of Mori et al. is never in contact, much less metallurgically bonded to, the shape memory alloy tube disclosed in Mori et al.

Further, as discussed above, although Mori et al. discloses contacting the inner surface of the shape memory alloy tube with the inner tube (i.e., element 5) of the stainless steel double tube, the outer tube of the stainless steel double tube *is alienated from the surface of the shape memory alloy tube.* Thus, if element 5 is considered to be equivalent to the "third plate" recited in claim 17, there is no equivalent structure in Mori et al. to the "second layer of a metallic material" that is metallurgically bonded to the shape memory alloy as recited by claim 1.

While, in reference to Fig. 3 (col. 9, lines 30-46), Mori et al. discloses a pipe coupling wherein a stainless steel coating is provided on a shape memory alloy tube for purposes of protecting the shape memory alloy tube from corrosion, as discussed above, there is no teaching or suggestion in Mori et al. of *a ballistic armor* as recited in the rejected claims. Although the phrase "ballistic armor" appears in the preamble of several of the rejected claims, the M.P.E.P. states that "[a]ny terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation." M.P.E.P. §2111.02 (citing Corning Glass Works v. Sumitomo Electric U.S.A, Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989)). The M.P.E.P provides the following illustration:

> A preamble reciting '[a]n abrasive article' was deemed essential to point out the invention defined by the claims to an article comprising abrasive grains and a hardened binder, and the process of making it. The court stated 'it is only by that phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article. Every union of substances capable *inter alia* of use as abrasive grains and a binder is not an 'abrasive article.' Therefore, the preamble served to further define the structure of the article produced.

M.P.E.P. §2111.02 (citing Kropa v. Robie, 187 F.2d 150, 152 (CCPA 1951)). In like manner, the phrase "ballistic armor" is essential to point out the invention defined by the instant claims, since every union of the materials recited therein does not provide a "ballistic armor." For example, in Mori et al. the union of materials provides a pipe coupling, not a ballistic armor. Accordingly, the preamble serves to further define the

structure of the article produced. In any event, Applicant intends that the preamble language "ballistic armor" serve to further limit the scope of the claims of the Subject Application in which it appears.

Since Mori et al. fails to teach or disclose all of the limitations of claims 1, 4-6, 9-10, 17, 45 and 55, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of these claims.

Rejections Under 35 U.S.C. §103(a) based on Mori et al. and Jackson et al. or Buehler et al.

The Examiner rejects claims 7 and 8 under 35 U.S.C. §103(a) as being unpatentable over Mori et al. in combination with Jackson et al. or Buehler et al. In particular, the Examiner applies Mori et al. as discussed above, but indicates that Mori et al. fails to teach the use of 55-Nitinol shape memory alloy. However, the Examiner asserts that this deficiency is provided by Jackson et al. or Buehler et al. Further, the Examiner asserts that it would have been obvious for a person skilled in the art to substitute the shape memory alloy disclosed in Mori et al. with 55-Nitinol, which is disclosed in Jackson et al. or Buehler et al. Further, the Examiner asserts that motivation for this substitution is provided by Mori et al. at col. 5, line 54 to col. 6, line 15.

Although Applicant does not acquiesce to the Examiner's combination of references, Applicant submits that even if the alloys disclosed in Mori et al. are substituted with 55-Nitinol as suggested by the Examiner, this combination of references fails to teach or suggest all of the limitations of claim 1, from which claims 7 and 8 indirectly depend. As discussed above, Mori et al. fails to teach or suggest a ballistic armor, much less a ballistic armor comprising at least one energy absorbing layer and a second layer of a metallic material that is contiguous with and metallurgically bonded thereto. Further, while Jackson et al. mentions armor, there is no teaching or suggest in either Jackson et al. or Buehler et al. of a ballistic armor comprising at least one energy absorbing layer and a second layer of a metallic material that is contiguous with and metallurgically bonded thereto as recited by claim 1. *See* Jackson et al. at p. 79.

As discussed above, claims 7 and 8 depend from claim 1, and therefore contain all of the limitations of claim 1. At least for the reason that the combination of Mori et al. in with Jackson et al. or Buehler et al. fails to teach or suggest all of the limitations of claim

1, Applicant submits that claims 7 and 8 are patentable over these combinations of references. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection.

Rejections Under 35 U.S.C. §102(e) based on Ashmead

The Examiner rejects claims 1, 4-10, 17, 45-46 and 55-58 under 35 U.S.C. §102(e) as being anticipated by Ashmead. The Examiner asserts that Ashmead discloses an armor comprising:

a) at least one energy absorbing layer having an elastic strain deformation of at least 5%;

b) at least one second layer of a metallic material;

c) metallurgical bonding to the at least one energy absorbing layer;

d) a third plate of a metallic material.

Independent claims 1, 45 and 55-58, recite, in part, a ballistic armor comprising at least one energy absorbing layer, the at least one energy absorbing layer consisting essentially of a metallic material that absorbs energy from the impacting projectile, *the metallic material being at least one of a metallic material that undergoes a reversible phase change upon absorbing energy and a metallic material that exhibits an elastic strain deformation of at least 5%.*

While Ashmead discloses an energy absorbing sheet, the sheet in Ashmead *does not* consist essentially of a metallic material selected from a metallic material that undergoes a reversible phase change upon absorbing energy and a metallic material that exhibits an elastic strain deformation of at least 5%. At col. 3, lines 16-19, Ashmead states that the disclosed energy absorbing sheet can be *aluminum or, alternatively, a thermoplastic* molded to a suitable shape. Those skilled in the art would appreciate that a thermoplastic is *not a metallic material* and *aluminum neither undergoes a reversible phase change upon absorbing energy nor exhibits an elastic strain deformation of at least 5%.*

Further, in contrast to the ballistic armor recited in the rejected claims, the sheet in Ashmead is intended to absorb energy by plastically (i.e., *irreversibly*) deforming on impact. As discussed at col. 1, lines 5-10 of Ashmead, the invention in Ashmead "relates to sacrificial energy-absorbing structures *constructed and intended to deform*

permanently in absorbing energy." (Emphases added). There is simply no teaching or suggestion in Ashmead to form a ballistic armor comprising an energy absorbing layer consisting essentially of a metallic material selected from a metallic material that undergoes a *reversible* phase change upon absorbing energy and a metallic material that exhibits an elastic (i.e., *reversible*) strain deformation of at least 5%.

Since Ashmead does not teach or suggest all of the limitations of claim 1, 45 and 55-58, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of these claims and their respective dependent claims.

Rejections Under 35 U.S.C. §103(a) based on Ashmead and Vecchio

The Examiner rejects claim 16 as being unpatentable over Ashmead in view of Vecchio. In particular, the Examiner applies Ashmead as above, but indicates that Ashmead does not disclose diffusion bonding. However, according to the Examiner, Vecchio supplies this deficiency. In particular, the Examiner asserts that it would have been obvious for a person skilled in the art to substitute one attachment means for another and that Ashmead encourages such a substitution.

Applicant respectfully submits that one skilled in the art would not be encouraged by the disclosure of Ashmead in view of the disclosure in Vecchio to make the combination suggested by the Examiner. In particular, while Ashmead discloses that a skin may be fixed to the energy absorbing sheet disclosed therein, Ashmead indicates that it is desirable to fix the skin to the sheet using a method that permits sliding of the front and rear face of the sheet against the skin. To this end, Ashmead discloses that the skin can be fixed using just four projections on the sheet, thereby leaving the remaining projections free to slide. Further, if all of the projections on the sheet are bonded to the skin, Ashmead teaches that it is preferred to use a weaker fixing method, such as a polyurethane adhesive, which still allows movement during impact. *See* Ashmead at col. 3, lines 3-15.

In direct contrast to the sort of bonding suggested in Ashmead, Vecchio discloses laminating together tough metal layers and intermetallic layers using a heat and pressure to form a lightweight composite armor. Since the lamination process taught in Vecchio would not provide a bond that allowed for movement between the sheet and the skin

during impact as disclosed in Ashmead, one skilled in the art would not be motivated to use the bonding process of Vecchio in combination with the sheet and skin of Ashmead.

Further, even if one were to combine the teachings of Ashmead and Vecchio as suggested by the Examiner, Applicant submits that this combination fails to teach or suggest all of the limitations of claim 1 from which claim 16 depends. As discussed above, Ashmead neither teaches nor suggests a ballistic armor comprising at least one energy absorbing layer, the at least one energy absorbing layer consisting essentially of a metallic material that absorbs energy from the impacting projectile, the metallic material being at least one of a metallic material that undergoes a reversible phase change upon absorbing energy and a metallic material that exhibits an elastic strain deformation of at least 5% as provided in claim 1.

In view of the foregoing, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of claim 16.

Rejections Under 35 U.S.C. §102(e) based on Jardine

The Examiner rejects claims 55 and 57 under 35 U.S.C. §102(e) as being anticipated by Jardine. According to the Examiner, Jardine discloses an armor comprising:

a) at least one energy absorbing layer that is a shape memory alloy (TiNi); and

b) at least one second layer of a metallic material (PZT);

c) adhesively bonding to the at least one energy absorbing layer;

d) a third plate of a metallic material (PZT); and

e) a vehicle.

As amended, claims 55 and 57 recite, in part, at least one energy absorbing plate consisting essentially of a metallic material, said metallic material being at least one of a metallic material that undergoes a reversible phase change upon absorbing energy and a metallic material that exhibits an elastic strain deformation of at least 5%, and at least one second plate of a metallic material that is contiguous with and metallurgically bonded to the at least one energy absorbing plate.

Jardine discloses a vibration dampening device including a heterostructure having a layer of a ferroelastic or SME material coupled with a first and second layer of a ferroelectric material having a layer of a dielectric material therebetween. *See* Jardine at

Abstract. At Fig. 1, Jardine depicts a PZT layer coupled to a TiNi layer. However, Jardine discloses, and those skilled in the art would appreciate, that PZT (or lead zirconate titanate) is a *perovskite based ceramic material. See* Jardine at col. 2, lines 27-30, and col. 4, lines 30-45. Accordingly, Jardine fails to teach or suggest at least one second plate of a *metallic material* as provided by claims 55 and 57.

Further, since PZT is a ceramic material, the formation of a metallurgical bond between the PZT and the TiNi is precluded. Accordingly, Jardine fails to teach or suggest at least one second plate of a *metallic material* that is *metallurgically bonded to* the at least one energy absorbing plate as provided by claims 55 and 57.

In view of the foregoing, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of claims 55 and 57.

Rejections Under 35 U.S.C. §103(a) based on Jardine and Ashmead

The Examiner rejects claims 1, 4-6, 9-11, 17-18, 45-46, 56 and 58 under 35 U.S.C. §103(a) as being unpatentable over Jardine in view of Ashmead. The Examiner applies Jardine as discussed above, but indicates that Jardine fails to teach a means of attaching the sheets together that is welding. The Examiner asserts that this deficiency is provided by Ashmead, and that it would have been obvious for one skilled in the art to substitute welding as a means for attaching the sheets in Jardine together.

Jardine discloses a device wherein a PZT layer is coupled to a TiNi layer. However, as indicated above PZT is *not a metal, but a ceramic.* Since welding involves joining together materials by localized coalescence using heat and/or pressure, or by pressure alone (with or without a filler material), and since PZT is a ceramic material (which have characteristically high melting points and are brittle), Applicant submits that one skilled in the art would not be motivated to use welding as a method of joining together the TiNi and PZT layers taught in Jardine.

Further, even if one skilled in the art were to combine the teachings of Jardine and Ashmead as suggested by the Examiner, Applicant submits that this combination fails to teach or suggest all of the limitations of the rejected claims. As discussed above, Jardine fails to teach a second layer of a metallic material as provided by claims 1 and 45 or a second plate of a metallic material as provided by claims 56 and 58. Applicant also

submits Jardine fails to disclose a third plate of *metallic material* as provided in claims 56 and 58, as the third plate suggested by the Examiner is also PZT, which is a ceramic.

In view of the foregoing, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of claims 1, 4-6, 9-11, 17-18, 45-46, 56 and 58

Rejections Under 35 U.S.C. §103(a) based on Jardine, Ashmead, and Jackson et al. or Buehler et al.

The Examiner rejects claims 7-8, 19 and 21-23 as being unpatentable over Jardine in view of Ashmead (as discussed above) and further in view of Jackson et al. or Buehler et al. According to the Examiner, Jardine and Ashmead together fail to disclose the use of a 55-Nitinol shape memory alloy. However, the Examiner asserts that this deficiency is supplied by Jackson et al. or Buehler et al. Further, the Examiner asserts that it would have been obvious in view of the disclosure of Jardine for a person skilled in the art to substitute the shape memory alloy in Jardine with the 55-Nitinol.

As discussed above, Jardine discloses a device wherein a PZT layer is coupled to a TiNi layer. Since PZT is a ceramic material, one skilled in the art would not be motivated to combine Jardine and Ashmead as suggested by the Examiner.

Further, as discussed above, Jardine fails to disclose a second layer of metallic material that is metallurgically bonded to a first energy absorbing layer as recited in claim 1. Accordingly, even if the references were combined as suggested by the Examiner, Applicant submits that this combination fails to teach or suggest all of the limitations of the rejected claims.

Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of claims 7-8, 19 and 21-23.

Rejections Under 35 U.S.C. §102(b) based on Tsilevich

The Examiner rejects claim 55 as being anticipated by Tsilevich. According to the Examiner, Tsilevich discloses an armor comprising:

a) at least one energy absorbing layer of a shape memory alloy; and

b) a plate.

As amended, claim 55 recites, in part, an article of manufacture comprising at least one energy absorbing plate, the at least one energy absorbing plate consisting essentially of a metallic material and at least one second plate of a metallic material that

is contiguous with and metallurgically bonded to the at least one energy absorbing plate, wherein the article of manufacture is a ballistic armor plate. Applicant submits that Tsilevich neither teaches nor suggests a ballistic armor plate including an energy-absorbing plate, and further fails to teach or suggest a second plate of a metallic material that is contiguous with and metallurgically bonded to the energy absorbing plate.

While the Examiner interprets the zigzag strip in Tsilevich to have flat faces, Applicant notes that Tsilevich itself indicates that the zigzag strip is not flat, but instead is bent into a zigzag shape, and further, teaches that on exposure to heat the strip "tries to regain the flat shape it had prior to being bent." *See* col. 2, line 66 to col. 2. to col. 3, line 2. Further, Applicant notes that Fig. 2 is a schematic longitudinal cross section of the barrier component (and the strip) disclosed therein, and Fig. 3 is transverse cross section of the barrier component. Based on these views Applicant submits that the "faces" of the strip are bent.

Applicant further notes even if the zigzag strip in Tsilevich is considered to be a "plate" (which point the Applicant does not concede), Tsilevich fails to disclose a ballistic armor plate. The barrier system in Tsilevich is designed to trap a non-projectile burglary tool, such as a cutting tool, by applying lateral compressive force to the tool making it difficult to further penetrate or withdraw. See, for example, Tsilevich at col. 1, lines 55-65 and col. 5, line 5.

Further, as discussed above, as amended, claim 55 recites, in part, at least one second plate of a metallic material that is contiguous with and metallurgically bonded to the at least one energy absorbing plate. Applicant asserts that Tsilevich neither teaches nor suggests an article of manufacture that is a ballistic armor and which comprises at least one first energy absorbing plate and at least one second plate of a metallic material that is contiguous and metallurgically bonded to the at least one first energy absorbing plate.

In view of the foregoing, Applicant respectfully requests that the Examiner reconsider and withdraw his rejection of claim 55.

Claim Objections

The Examiner objects to claims 12-14 as being dependent on rejected base claims but indicates that these would be allowable if rewritten in independent form. For the foregoing reasons, Applicant submits that the base claims (1, 10 and 11) are in a condition for allowance and respectfully requests that the Examiner reconsider and withdraw his objection to claims 12-14.

* * * * *

CONCLUSION

Claims 1, 4-14, 16-19, 21-23, 45, 46 and 55-58 are pending in the Subject Application. Claims 1, 4-14, 16-19, 21-23, 45 and 55-58 are amended herein. For the foregoing reasons, Applicant respectfully submits that the pending claims are in condition for allowance and requests that the Examiner reconsider and allow the same.

If the undersigned may be of any assistance to the Examiner in addressing any remaining issues to advance the Subject Application to allowance, the Examiner is invited to contact the Applicant's undersigned representative at the number set forth below.

Respectfully Submitted,

Date: August 8, 2005

Kanni Lammon-Hilinski
Reg. No. 51,913

KIRKPATRICK & LOCKHART NICHOLSON GRAHAM, LLP
Henry W. Oliver Building
535 Smithfield Street
Pittsburgh, Pennsylvania 15222-2312
Phone: 412.355.8928
Fax: 412.355.6501